

NJ Affordable Green Case Study

Brick Church Commons, East Orange New Jersey
A once vacant downtown site in East Orange will soon
have 3 new energy efficient buildings providing 104 units
of housing and 37,500 sf of retail space. Developed by
RPM Development Group, Brick Church Commons
combines a mix of affordable and market rate apartments
above retail businesses. The project is in a pedestrain
friendly location with local shopping and access to buses
and trains. Residents will have onsite parking, laundry

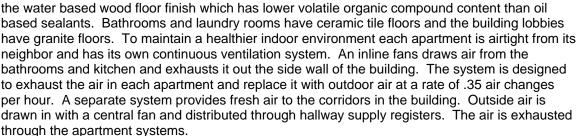
facilities and a children's play area. The project's namesake, a red brick church, stands to the west with it's nineteenth century spire creating an attractive focal point for the neighborhood. Drawing from its context, the Brick Church Commons buildings will be clad in block at the ground floor level and red brick above.

All apartments in the complex are two bedroom with generously sized kitchens and living rooms. High ceilings and open floor plans allow daylight to wash through the spaces. Of the 104 units, 34 will be for low income residents while 68 will be market rate. The affordable units have 1-1/2 baths, while the market rate units have two full baths and an added den.

Green Features

All kitchens, living rooms, dens and hallways have wood flooring made of recycled or post industrial wood. Base molding is also made from post industrial wood.

Indoor air quality in the buildings will benefit from the minimal use of carpet, provided in bedrooms only, and from



Energy Efficient Features

Buildings 1 and 2 at Brick Church Commons are 4 story wood frame structures. These buildings have R-13 fiberglass insulation inside the wall cavity. Building 3 is 5 stories framed in steel studs. To avoid conductive heat losses through the steel framing, Building 3 uses 2" R-14.3 rigid polyisocyanurate foam insulation on the outside of the studs. The top floor ceiling of building 1 is insulated with R-30 fiberglass insulation. In buildings 2 and 3 the roof has R-25 exterior polyisocyanurate rigid insulation above the roof deck. All three buildings are air sealed around window openings with minimally expanding foam to avoid infiltration losses. The windows are thermally broken aluminum framed double glazed low e windows.

Each apartment has a sealed combustion 90% efficient condensing gas furnace and a SEER 13 1.5 ton air conditioning unit. All ductwork is sealed with mastic for air tightness and insulated with R4.2 duct wrap insulation. Each apartment's heating and cooling system is controlled with programmable thermostats. Each building has central hot water heating provided by high capacity energy efficient sealed combustion gas water heaters. Hot water is run in a continuous loop throughout the buildings to provide hot water almost immediately when called for at a fixture.



This avoids wasted water and energy. All kitchen appliances are Energy Star and most light fixtures use compact fluorescent lamps. The Brick Church Commons buildings will all comply with the NJBPU New Jersey Energy Star Program.

Lessons Learned

The design for Building 1 called for exterior rigid insulation on the roof. Because of a budget constraint fiberglass insulation was installed at the ceiling of the top floor apartments. One of the reasons the exterior insulation was suggested by the sustainable consultant was that it would keep the rood deck warm and avoid condensation from forming beneath it. As a result of the fiberglass insulation being installed, the roof has to be mechanically ventilated causing design changes at the roof and continued energy use for the ventilation fans.



Brick Church Commons, Building One

Project Summary Brick Church Commons

OWNER/DEVELOPER

RPM Management, LLC

ARCHITECT/ENGINEER

John C. Inglese

CONTRACTOR

RPM Contracting, LLC

SUSTAINABLE DESIGN CONSULTANT

Joseph Lstiburek, Building Science Corp.

PROPERTY MANAGEMENT

RPM Management, LLC

FUNDING

Construction Loan	\$14,079,779
City of East Orange UEZ	\$250,000
City of East Orange UDAG/HOME	\$1,000,000
Essex County	\$1,000,000
Deferred Developer Fee	\$2,100,000
NJ Green Homes Office	
Total	\$18,429,779

DEVELOPMENT TYPE

Hi-rise and mid-rise multifamily residential commercial first floor

RESIDENT PROFILE

Families and individuals at low income (34 units) and market rate (68 units)

DENSITY

38 units per acre.

DEVELOPMENT PROFILE

Туре	#/Units	Approx. SF	Rent
2BR	34	1000	\$754
2BR with den	68	1300	\$1098

CONSTRUCTION TYPE

Two four story and one five story new construction block and frame

DEVELOPMENT COSTS

Property acquisition costs	600,000
Construction costs	16,275,000
Professional Services	422,000
Financing and other costs	1132779
Total	\$18,429,779

Energy Efficient/Green features

Building Envelope

Buildings 1 and 2 Walls –R-13 fiberglass insulation; Building 3 Walls - R14.3 exterior polyisocyanurate rigid foam insulation

Building 1 Ceiling –R-30 fiberglass insulation; Buildings 2 and 3 R25 exterior rigid polyisocyanurate foam insulation

Windows - thermally broken aluminum, low e, argon filled

Air sealing measures - Air tight drywall approach, minimally expanding foam sealant at window rough openings.

Mechanical systems

Heating system - 90% efficient condensing gas furnaces

Air conditioning - SEER 13 1-1/2 ton AC units

Programmable thermostats

Central hot water with high efficiency gas fired water heaters. Hot water circulated in a continuous loop

Appliances/lighting

Energy Star refrigerator and dishwasher

Indoor Lighting - most fixtures use compact fluorescent lamps

Green/recycled materials practices

Recycled or post industrial wood flooring

Wood base molding made from postindustrial wood

Indoor air quality measures

Wood flooring in kitchens, living rooms dining rooms and hallways

Water based urethane finish on wood floors

Ceramic tile in bathrooms

Granite tile in lobbies

Mechanical compartmentalized ventilation in apartments and public hallways

Water Conservation

Drought resistant landscaping

Transportation

Accessible to train and buses